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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,727

08/08/2006

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EXAMINER

SASTRI, SATYA B

ART UNIT

PAPER NUMBER

1796

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,727	<b>Applicant(s)</b> SUZUKI ET AL.	
	<b>Examiner</b> SATYA B. SASTRI	<b>Art Unit</b> 1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)                       |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application             |
| Paper No(s)/Mail Date <u>8/8/06</u> .  | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> . |

Continuation of Attachment(s) 6). Other: Machine translation, JP 10-088062.

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### **DETAILED ACTION**

1. This office action is in response to application filed on August 8, 2006. Claims 1-11 are now pending in the application.

#### ***Specification***

2. In paragraph 0046 of the instant specification, the word "filler" is incorrectly spelt.

#### ***Claim Objections***

3. In claims 1, 6, 7 are objected for the following minor informality:

In claim 1, the word "least" is spelt incorrectly. Further, the language in claims 1, 6 and 7 may be amended for clarity because it is unclear as to which elements of the group (of filler (C) for claims 1 and 6 and flame retardant for claim 7) are required by the claim.

#### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 3, 4, 8-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 3 and 8, given that the phrase "the acrylic copolymer (A)" recited in claim 3 appears to suggest one copolymer and not a polymeric blend in the resin composition, thus the limitation "at least one major component of polymer components constituting the acrylic copolymer (A)" in the claim language is vague and indefinite.

In claims 4, 9-11, the phrase "...sheet article comprising a cured article of the resin composition..." is confusing. Examiner interprets the claim as reciting a soft resinous article comprising the cured resin composition of claim 1.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaya et al. (US 4,698,379) in view of Takamasa et al. (JP 10-088062, machine translation, referred to as '062).

Pending an official translation for '062, a machine translation is used in the body of this rejection.

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Nakaya et al. disclose curable compositions comprising magnesium hydroxide having an average particle size of 5 to 500 microns (abstract). The curable compounds include (meth)acrylic oligomer with another addition polymerizable monomer (col. 6, lines 65-68, col. 7, lines 23-37). The compositions may include 50-85% magnesium hydroxide alone or in combination as flame retarding filler or in amounts of 5 to 80% by wt., either alone or in combination as bulking filler. Further, a combination of aluminum hydroxide and magnesium hydroxide may be used (col. 7, lines 66-68, col. 8, lines 1-43). The compositions may be molded into sheets by heat press molding (col. 8, lines 52-62).

The prior art is silent with regard to (1) molecular wt. and acid value of the acrylic copolymer and (b) compounds comprising two or more glycidyl groups.

Makaya et al. disclose that the curable compositions may include appropriate curing agents (col. 7, lines 63-65). Secondary reference to Takamasa et al. discloses coating compositions comprising carboxylic polymer and aliphatic diepoxide curing agents (abstract, col. 3, lines 1-16). Given the teaching that aliphatic polyepoxides, particularly cycloaliphatic epoxides can produce coatings that can be cured rapidly and efficiently (col. 1, lines 35-40), it would have been within the level of ordinary skill in the art to include such polyepoxides in the curable compositions of Nakaya et al.

Further, with regard to the molecular wt. and the acid value of acrylic copolymer, while the primary reference discloses them as the acid-containing acrylic component as monomeric or oligomeric, the secondary reference discloses that the suitable molecular wt. ranges from 500-10,000. Given the art recognized suitability of acrylic resins with MW in the range of 500-10,000

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in curable compositions, it would have been obvious to one of ordinary skill in the art to include the same in curable compositions such as that disclosed by Nakaya et al.

Further, given that the carboxylic content ranges from 15-60% by wt., it is the examiner's position that the disclosed resins encompass the presently recited resins with acid values in the range of 20-150, absent evidence to the contrary

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaya et al. (US 4,698,379) in view of Takamasa et al. (JP 10-088062, Machine translation, referred to as '062) and further in view of Wakabayashi et al. (WO2004/031299).

At the outset, it is noted that WO2004/031299 is used for date purposes while US 7,351,782 is used as the English equivalent in the rejection set forth below.

The discussions with regard to Nakaya et al. and Takamasa et al. above in paragraph 7 are incorporated herein by reference.

The prior art is silent with regard to hydroxyl group-containing aliphatic acids in the curable compositions.

Prior art to Wakabayashi et al. discloses curable compositions comprising carboxylic acids (col. 19, lines 26-35). Disclosed acids include a variety of carboxylic acids as well as hydroxyl group-containing aliphatic acids such as glycolic acid, gluconic acid, caprylic acid, 2-hydroxydecanoic acid etc. Given that carboxylic acids and hydroxyl group-containing carboxylic acids are functionally equivalent and interchangeable (col. 16, lines 16-56) and given the teaching that such acids are useful for the recovery property, durability and creep resistance and water resistant adhesion (col. 19, lines 56-65), it would have been obvious to one

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of ordinary skill in the art to include any of the disclosed acids, including the presently claimed hydroxyl group-containing aliphatic acids and thereby arrive at the present claims, absent evidence of unexpected results.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakaya et al. (US 4,698,379) in view of Takamasa et al. (JP 10-088062, Machine translation, referred to as '062) and further in view of Dany et al. (US 4,009,137).

The discussions with regard to Nayaka et al. and Takamasa et al. above in paragraph 7 are incorporated herein by reference.

The prior art is silent with regard to the specific use of polyphosphate-based flame retardants in the curable compositions.

Nakaya et al. disclose that in addition to magnesium hydroxide, phosphorus based flame retardants may be used as assistant agents (col. 8, lines 38-40). Dany et al. disclose that phosphorus based flame retardants such as ammonium polyphosphates may be used to make flame retardant coating compositions (abstract). Given the teaching of polyphosphates as flame retardants, it would have been obvious one of ordinary skill in the art to include the same in the compositions based on combined teachings of Nakaya et al. Takamasa et al. and thereby arrive at the present claim.

10. Claims 1, 3, 4, 5, 6, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US 6,783,850 B2) in view of Abe et al. (US 4,081,414).



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The prior art to Takizawa et al. discloses acrylic polymer compositions comprising 5-75 parts by wt. an adherent acrylic polymer (a), 5 to 40 parts by wt. of (meth)acrylate tackifying resin (b) with an average molecular wt. less than 20,000 and a monomer (c), for coating on polyolefins films, polyester films, paper and metal foils (abstract, col. 17, lines 37-40). The adhesive compositions may include fillers such as aluminum hydroxide, clay, talc etc. (col. 17, lines 15-20).

The tackifying resin contains (meth)acrylate ester in amounts of 50% or more and may be copolymerized with monomers including carboxyl groups. Suitable tackifying copolymer may be based on isobutyl methacrylate and methacrylic acid ((col. 12-13).

Furthermore, as suitable crosslinking agents, a variety of diglycidyl ether compounds are disclosed (col. 16, lines 60-67).

Working example 7 discloses compositions comprising acrylic tackifying resin (6) with an acrylic adherent polymer (B) and epoxy or isocyanate crosslinking agent. The adherent acrylic polymer has a high molecular wt. and a Tg in the range of -77°C.

The prior art is silent with regard (a) the particulate size of aluminum hydroxide filler and (b) the acid value of the tackifying resin.

The prior art to Abe et al. is in an analogous filed of art, i.e. adhesive compositions comprising inorganic fillers in amounts of 50-1000 parts per 100 parts of resin to increase the volume, reduce the cost, and improve the properties such as adhesive strength and processability. The particle size may range from 0.01 to 100 microns. As the filler, calcium carbonate, aluminum hydroxide, talc, or clay may be preferably used. Furthermore more than one of said fillers can be used mixed together. Addition of less than the amount specified will

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increase the cost of the adhesive, and an excessive addition will reduce the bond strength (abstract, col. 3, lines 30-40). Given the teaching on suitable particle sizes, types and amounts of filler to be used, it would have been obvious one of ordinary skill in the art to include the aluminum hydroxide with particle size ranging from 0.01 to 100 microns in amounts of 50 to 1000 parts per 100 parts of resin in the compositions of Takizawa et al. and thereby arrive at the presently cited claims.

While acid values are not explicitly disclosed by Takizawa et al., given the teaching that the acid monomer may be present in amounts of 50% or less, it is the examiner's position that the disclosed resins must encompass the presently claimed resins with the recited acid values.

Additionally, given that the compositional requirements are met, the hardness as recited in claim 4 must be inherent to the composition derived from the combination of references.

11. Claims 2, 8, 9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US 6,783,850 B2) in view of Abe et al. (US 4,081,414) and Wakabayashi et al. (WO2004/031299).

At the outset, it is noted that WO2004/031299 is used for date purposes while US 7,351,782 is used as the English equivalent in the rejection set forth below.

The discussions with regard to Takizawa et al. and Abe et al. above in paragraph 10 are incorporated herein by reference.

The prior art is silent with regard to hydroxyl group-containing aliphatic acids in the curable compositions.

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Prior art to Wakabayashi et al. discloses curable compositions comprising carboxylic acids (col. 19, lines 26-35). Disclosed acids include a variety of carboxylic acids as well as hydroxyl group-containing aliphatic acids such as glycolic acid, gluconic acid, caprylic acid, 2-hydroxydecanoic acid etc. Given that carboxylic acids and hydroxyl group-containing carboxylic acids are functionally equivalent and interchangeable (col. 16, lines 16-56) and given the teaching that such acids are useful for the recovery property, durability and creep resistance and water resistant adhesion (col. 19, lines 56-65), it would have been obvious to one of ordinary skill in the art to include any of the disclosed acids, including the presently claimed hydroxyl group-containing aliphatic acids and thereby arrive at the present claims, absent evidence of unexpected results.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takizawa et al. (US 6,783,850 B2) in view of Abe et al. (US 4,081,414) and Dany et al. (US 4,009,137).

The discussions with regard to Takizawa et al. and Abe et al. above in paragraph 10 are incorporated herein by reference.

The prior art is silent with regard to the specific use of polyphosphate-based flame retardants in the curable compositions.

Dany et al. disclose that phosphorus based flame retardants such as ammonium polyphosphates may be used to make flame retardant coating compositions (abstract). Given the teaching of that polyphosphates are useful for making flame retardant coating compositions, it would have been obvious one of ordinary skill in the art to include the same in the compositions

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based on combined teachings of Takizawa et al. and Abe et al. and thereby arrive at the presently cited claim.

***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri at (571) 272 1112. The examiner can be reached on Wednesdays and Fridays, 7AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Satya B Sastri/

Examiner, Art Unit 1796